

CALIFORNIA, ~~STATE~~ BOARD OF HEALTH.

MONTHLY BULLETIN.

Entered as second-class matter August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894.

Vol. 4.

SACRAMENTO, JULY, 1908.

No. 2

STATE BOARD OF HEALTH.

MARTIN REGENSBURGER, M.D., <i>President</i> ,	San Francisco	F. K. AINSWORTH, M.D.	San Francisco
WALLACE A. BRIGGS, M.D., <i>Vice-President</i> ,	Sacramento	A. C. HART, M.D.	Sacramento
N. K. FOSTER, M.D., <i>Secretary</i>	Sacramento	O. STANSBURY, M.D.	Chico
HON. J. E. GARDNER, <i>Attorney</i>	Watsonville	W. LE MOYNE WILLS, M.D.	Los Angeles

STATE BUREAU OF VITAL STATISTICS.

N. K. FOSTER, M.D., *State Registrar* .. Sacramento | GEORGE D. LESLIE, *Statistician* .. Sacramento

STATE HYGIENIC LABORATORY.

ARCHIBALD R. WARD, D.V.M., *Director* .. University of California, Berkeley

STATE FOOD AND DRUG LABORATORY.

M. E. JAFFA, M.S., *Director* .. University of California, Berkeley

PLUCK.

"Pluck wins! It always wins, though days be slow,
And nights be dark 'twixt days that come and go.
Still pluck will win, its average is sure;
He gains the prize who can the most endure.
Who faces issues, he who never shirks,
Who waits and watches, and who always works."

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS.

The International Congress on Tuberculosis meets in Washington September 21st to October 12th, and it is hoped every physician in the State will read the address of Dr. John S. Fulton printed on the next page of this issue. It is not necessary in order to profit by the papers and discussions to be present. It will cost but the \$5.00 membership fee, and somewhere in the papers or discussions one thought can be found by every physician which will be worth that amount.

CONSUMPTION IS EPIDEMIC.

It prevails everywhere, at all seasons.
It exists in every county in California.
It killed 4,607 persons in California in 1907.
It is a house disease.
It is principally induced by breathing foul air.
It is directly caused by a microbe.
It is always preventable by proper living.
It is curable in its early stages.
It is the arch enemy of mankind.
It should be combated and overcome.

The International Congress on Tuberculosis meets in Washington September 21st to October 12th, and Dr. John S. Fulton, Secretary-General, has sent out the following address:

THE INTERNATIONAL CONGRESS ON TUBERCULOSIS,
OFFICE OF THE SECRETARY-GENERAL, SUITE 714 COLORADO BUILDING,
WASHINGTON, D. C., June 8, 1908.

Will the American membership of the International Congress on Tuberculosis be large enough to justify our having asked the Congress to meet in America? Shall we deserve the good opinion of our guests from France, Germany, and England, if there are relatively fewer Americans in the American Congress than there were of Frenchmen in the French Congress, or of Germans in the German Congress, or of Englishmen in the British Congress?

After the International Congress is over shall we be satisfied with our part in it? Americans of this generation will have but one chance to profit by a World's Parliament of this work in our national capital. And when it has passed into history, shall we find that we have been awake to our opportunity? Unless values are created before the Congress, there will be no profits to be counted afterwards.

Who will carry to your people the vitalizing message of the Congress? You? If not you, then who? The time for action in this matter is that instant in which you first realize the significance, the swift approach and swifter passing of this unique opportunity.

Yours very truly,

JOHN S. FULTON,
Secretary-General.

California is asked to provide 300 members, and less than one-third have as yet subscribed. What doctor interested in his work does not want the many interesting and original papers and the discussions following them? These can be had by becoming a member. The membership fee is only \$5.00, which entitles one to all the printed proceedings. Subscriptions may be sent to Dr. John S. Fulton, 714 Colorado Building, Washington, D. C., or Dr. F. M. Pottenger, Secretary, Monrovia, California, or Dr. N. K. Foster, Chairman California Committee, Sacramento.

SOME NEW RULES FOR SCHOOL CHILDREN.

Dr. S. A. Knopf of New York City, the author of the now famous "prize essay" on "Tuberculosis as a Disease of the Masses, and How to Combat It," has recently issued a most excellent circular containing a set of "Simple Rules for School Children to Prevent Tuberculosis."

“Every child and adult can help to fight consumption,” says Dr. Knopf. School children can be helpful by complying with the following rules:

Do not spit except in a spittoon, a piece of cloth, or a handkerchief used for that purpose alone. On your return home have the cloth burned by your mother, or the handkerchief put in water until ready for the wash.

Never spit on a slate, floor, playground, or sidewalk.

Do not put your fingers into your mouth.

Do not pick your nose or wipe it on your hand or sleeve.

Do not wet your fingers in your mouth when turning the leaves of books.

Do not put pencils in your mouth or wet them with your lips.

Do not hold money in your mouth.

Do not put pins in your mouth.

Do not put anything in your mouth except food and drink.

Do not swap apple cores, candy, chewing gum, half-eaten food, whistles, bean blowers, or anything that is put in the mouth.

Peel or wash your fruit before eating it.

Never sneeze or cough in a person's face. Turn your face to one side or hold a handkerchief before your mouth.

Keep your face, hands, and finger-nails clean. Wash your hands with soap and water before each meal.

When you don't feel well, have cut yourself, or have been hurt by others, do not be afraid to report to the teacher.

Keep yourself just as clean at home as you do at school.

Clean your teeth with toothbrush and water, if possible, after each meal; but at least on getting up in the morning and on going to bed at night.

Do not kiss any one on the mouth or allow anybody to do so to you.

Learn to love fresh air, and learn to breathe deeply and do it often.

This set of simple hygienic rules should form a part of the curriculum in every school in the land. Every teacher in New York State should take these and make them a part of her instructions in hygiene.

This is only one of the many valuable contributions which Dr. Knopf has made to this subject, the most famous being the essay referred to above, which is now published in nearly all the European and several of the Asiatic languages, presenting in a simple and untechnical way information concerning the development and spread of what is known as the “Great White Plague,” and the rules essential to its prevention and treatment.

PLAGUE IN SQUIRRELS.

Two cases of plague, both fatal, occurred in Contra Costa County in July, and infected rats and squirrels were found in the near vicinity. For the past three or four years there have been no cases of plague in this county, and active work was begun at once to eradicate it. This is the first absolute demonstration of an infection among the ground squirrels, although the health authorities have long felt certain that it existed. We have before pointed out the danger of allowing these useless rodents to exist, and now that two more deaths are charged

against them, it is certainly time for active measures to be taken. As the squirrels live, as a rule, in sparsely settled country the death rate from plague contracted from them will never be enormous, but will be enough to keep every one in a state of nervousness, and will detract very materially from the value of land. No one will care to live where every few years the disease is apt to recur and a certain number of persons become infected.

The plague is, primarily, a rodent disease, and is kept alive by existing in a more or less chronic form among those living in the ground. Once let the ground squirrels of the State become extensively infected, and California is bound to become a plague focus, and every few years, or, perhaps every year, cases will occur in some locality, and it will cost that locality thousands of dollars to clear it out, besides the deaths and loss of reputation.

This is not entirely a local matter. The whole State is in danger, and the whole State should know and appreciate the situation. It is useless, bad policy and dangerous to minimize the seriousness of the situation. Denying its existence is foolish, for the evidence is in the hands of the world, and our reputation as a State is at stake. By united, earnest, and protracted work we can stamp it out. The two roads are open—one of denial and disregard of the danger with the result of distrust from other States, with the chances of a quarantine which would effectually stop travel to the State, prevent the sale of our products in other states, and cause a great depreciation of values; the other of hard but successful work, attended by no inconsiderable expense, but with the result of a clean bill of health which will bring prosperity. There is a strong commercial side which urges the destruction of the rodents, for they annually destroy for the farmers much more than the cost of their extermination, besides the large sum that is spent for poisons.

The expenditure of effort and money in the past has been without system, and is largely for naught, for if one clears his ranch of squirrels they swarm in upon him from other ranches that are not cared for. It can only be successfully done by covering the infected field with a systematic destruction which should be done by a united national, state, and local effort. To do this will require legislation, for there are those who have so little interest in the welfare of the State, and are so supremely selfish that nothing but a strong law will bring them to a realization of their duty to others.

The health authorities are doing and will do all in their power to protect the lives of the people, but with their limited means the work can not be done. It is a work which must be done largely by the people, led and instructed by intelligent organization. Strict laws must be passed and enforced compelling the destruction of these useless pests, and appropriations made by the State which should be supplemented by the United States, and the extermination carried on in a systematic manner. It will have to be done some time or the State will be a permanent focus of plague, and every one can foresee the result. Now is the cheapest and best time, and every one interested in the welfare of California should urge the enactment of efficient laws and ample appropriations.

SAVE THE BABIES.

In the month of June there were 100 and in July 133 deaths in California among children under two years from diarrhea and other bowel troubles. These deaths were almost entirely unnecessary, and were the result of improper care of the children. This may seem a hard arraignment of the mothers, but it is nevertheless true, for with proper food, clothes, and air there would seldom be a case of diarrheal trouble in children. Improper feeding is the greatest cause. Milk is, or should be, the chief food, but it must be pure and fresh, and fed from clean bottles. Many a child is sent to its grave by dirty nursing bottles. Keep milk away from flies. They delight to bathe in it after a visit to the filthiest places in the neighborhood and leave the germs of disease for the baby. Keep the milk cool, and never let it be exposed to dust.

A child under two years should not be fed extensively on meat and candies; pickles and preserves should be forbidden. Fruit juice should be given, but care exercised about their eating the pulp, as it is largely fiber and hard to digest. Don't feed too often, and give them plenty of water to drink. Water, outside and in, is necessary for their health.

It is no uncommon thing to see babies wrapped in several coverings of flannels in a hot room with the thermometer outside at 90°. No wonder they die. Keep the baby cool in summer and warm in winter. Never forget that a little baby, as well as a grown one, needs *constant supply of pure air*. Don't fear it's taking cold. Pure air never gives a person a cold, but will prevent it. A child properly fed, bathed and clothed will seldom need drugs; but if it does, call a person skilled in their use, for promiscuous drugging kills many. The baby's life is worth more than a doctor's bill.

DEPARTMENT OF VITAL STATISTICS.

GEORGE D. LESLIE, STATISTICIAN.

TUBERCULOSIS IN CALIFORNIA.

The State.—Tuberculosis is the principal cause of death in California, being the cause of about one-seventh of all deaths. Of 31,095 deaths reported to the State Bureau of Vital Statistics for 1907, 4,607, or 14.8 per cent, were from tuberculosis, and of 29,303 deaths reported for 1906, 4,437, or 15.1 per cent, were also from the "great white plague." The totals for diseases of the circulatory system were only 4,362 and 3,766 for 1907 and 1906, respectively; for diseases of the respiratory system, 3,588 and 3,187; for diseases of the nervous system, 3,060 and 2,763; and for diseases of the digestive system, 2,775 and 2,678.

From tuberculosis of the lungs there were 4,040 deaths in 1907, as compared with 3,861 in 1906, while from tuberculosis of other organs there were 567 deaths in 1907 against 576 in 1906.* Of each 1,000 deaths in California in 1907, 129.9 were from tuberculosis of the lungs and 18.2 from tuberculosis of other organs, or 148.1 from tuberculosis of all forms. In 1906 the proportions were 131.7 for tuberculosis of the lungs and 19.7 for tuberculosis of other organs, or 151.4 for all forms.

For an estimated State population of 2,001,193 in 1907 the death rate per 100,000 inhabitants is 201.9 for tuberculosis of the lungs and 28.3 for tuberculosis of other organs, or altogether 230.2 for all forms of tuberculosis. Similarly, for an estimated population of 1,882,846 in 1906 the death rate per 100,000 is 205.1 for pulmonary tuberculosis and 30.6 for other forms, or 235.7 for all kinds. In short, the tuberculosis death rate per 100,000 was no less than 230.2 for 1907 and 235.7 for 1906.

The general death rate per 1,000 population was 15.5 for California in 1907 and 15.6 in 1906, the rates being swollen greatly by deaths from tuberculosis. It will be shown that many deaths from tuberculosis in California occur among persons of short residence in the State, who evidently came here when too far gone with the disease to be cured. It is also quite likely that many other cases arising here are directly due to this imported infection.

*The distribution of deaths from tuberculosis other than pulmonary was as follows:

	1907.	1906.
Tuberculosis of larynx	29	23
Tuberculous meningitis	230	246
Abdominal tuberculosis	161	166
Pott's disease	26	30
Tuberculous abscess	1	4
White swelling	10	15
Tuberculosis of other organs.....	28	28
General tuberculosis	82	64
Total.....	567	576

Geographic Divisions.—Southern California is an especially popular resort for consumptives, and here over one-fifth of all deaths are due to tuberculosis. The following table shows the number and per cent of deaths from tuberculosis for the several geographic divisions of the State in both 1907 and 1906:

Number and Per Cent of Deaths from Tuberculosis, for Geographic Divisions:
1907 and 1906.

GEOGRAPHIC DIVISION.	Deaths.		TUBERCULOSIS.			
			Number		Per Cent.	
	1907.	1906.	1907.	1906.	1907.	1906.
THE STATE -----	31,095	29,303	4,607	4,437	14.8	15.1
<i>Northern California</i> -----	3,944	3,528	434	426	11.0	12.1
Coast counties -----	1,761	1,614	219	210	12.4	13.0
Interior counties -----	2,183	1,914	215	216	9.8	11.3
<i>Central California</i> -----	18,063	17,692	2,343	2,269	13.0	12.8
San Francisco -----	6,575	7,151	802	809	12.2	11.3
Other bay counties -----	4,426	3,911	577	488	13.0	12.5
Coast counties -----	2,121	2,223	277	322	13.1	14.5
Interior counties -----	4,941	4,407	687	650	13.9	14.7
<i>Southern California</i> -----	9,088	8,083	1,830	1,742	20.1	21.6
Los Angeles -----	6,346	5,471	1,286	1,161	20.3	21.2
Other counties -----	2,742	2,612	544	581	19.8	22.2
<i>Northern and Central California</i> -----	22,007	21,220	2,777	2,695	12.6	12.7
Coast counties -----	14,883	14,899	1,875	1,829	12.6	12.3
Interior counties -----	7,124	6,321	902	866	12.7	13.7
Metropolitan area -----	11,001	11,062	1,379	1,297	12.5	11.7
Rural counties -----	11,006	10,158	1,398	1,398	12.7	13.8

This table shows that in Southern California in 1907, 20.1 per cent of all deaths were from tuberculosis, and in 1906 no less than 21.6 per cent. For Los Angeles County the per cents were 20.3 for 1907 and 21.2 for 1906, while for the other counties south of Tehachapi the per cents were respectively 19.8 and 22.2.

North of Tehachapi only one-eighth of the deaths are due to tuberculosis, the per cents for Northern and Central California together being 12.6 for 1907 and 12.7 for 1906. The per cents for 1907 and 1906, respectively, were 13.0 and 12.8 for Central California and 11.0 and 12.1 for Northern California, the prevalence of tuberculosis decreasing more and more toward the north. The per cent was below the State average each year for every main and minor geographic division north of Tehachapi, being lowest of all for the interior counties of Northern California, 9.8 in 1907 and 11.3 in 1906.

The per cents are somewhat less for the metropolitan area comprising San Francisco and the other bay counties, 12.5 in 1907 and 11.7 in 1906, than for the rural counties north of Tehachapi, 12.7 and 13.8, respectively. In the city and county of San Francisco the per cent of deaths from tuberculosis was only 12.2 for 1907 and 11.3 for 1906.

Length of Residence.—The heavy mortality from tuberculosis in California is due largely to the immigration of people so badly afflicted with this disease that they can not recover, even under the most favorable climatic conditions, though they may lengthen their lives somewhat by coming to this land of sunshine. For it appears that many who died of tuberculosis in California had been residents of the Golden State for only a short time. This is shown for the several geographic divisions in 1907 and 1906 in the following table, giving numbers and per cents by length of residence:

Deaths from Tuberculosis Classified by Length of Residence in California, with Per Cents, for Geographic Divisions: 1907 and 1906.

GEOGRAPHIC DIVISION.	Total.....	LENGTH OF RESIDENCE.					PER CENT.				
		Under 1 Year....	1 to 9 Years	10 Years and Over.	Life	Unknown..	Under 1 Year....	1 to 9 Years	10 Years and Over.	Life	Unknown..
1907.											
THE STATE.....	4,607	457	1,030	1,184	1,319	617	9.9	22.4	25.7	28.6	13.4
Northern California.....	434	16	35	148	156	79	3.7	8.1	34.1	35.9	18.2
Coast counties.....	219	5	12	76	89	37	2.3	5.5	34.7	40.6	16.9
Interior counties.....	215	11	23	72	67	42	5.1	10.7	33.5	31.2	19.5
Central California.....	2,343	104	300	700	892	347	4.4	12.8	29.9	38.1	14.8
San Francisco.....	802	35	87	209	326	145	4.4	10.8	26.1	40.6	18.1
Other bay counties.....	577	18	70	207	217	65	3.1	12.1	35.9	37.6	11.3
Coast counties.....	277	12	29	85	135	16	4.3	10.5	30.7	48.7	5.8
Interior counties.....	687	39	114	199	214	121	5.7	16.6	29.0	31.1	17.6
Southern California.....	1,830	337	695	336	271	191	18.4	38.0	18.4	14.8	10.4
Los Angeles.....	1,286	227	508	238	165	148	17.7	39.5	18.5	12.8	11.5
Other counties.....	544	110	187	98	106	43	20.2	34.4	18.0	19.5	7.9
Northern and Central Cali- fornia.....	2,777	120	335	848	1,048	426	4.3	12.1	30.5	37.7	15.4
Coast counties.....	1,875	70	198	577	767	263	3.7	10.6	30.8	40.9	14.0
Interior counties.....	902	50	137	271	281	163	5.5	15.2	30.0	31.2	18.1
Metropolitan area.....	1,379	53	157	416	543	210	3.8	11.4	30.2	39.4	15.2
Rural counties.....	1,398	67	178	432	505	216	4.8	12.7	30.9	36.1	15.5
1906.											
THE STATE.....	4,437	555	917	1,182	1,284	499	12.5	20.7	26.6	28.9	11.3
Northern California.....	426	16	47	142	160	61	3.8	11.0	33.3	37.6	14.3
Coast counties.....	210	4	27	69	83	27	1.9	12.9	32.8	39.5	12.9
Interior counties.....	216	12	20	73	77	34	5.6	9.3	33.8	35.6	15.7
Central California.....	2,269	97	287	696	864	325	4.3	12.6	30.7	38.1	14.3
San Francisco.....	809	21	75	224	341	148	2.6	9.3	27.7	42.1	18.3
Other bay counties.....	488	17	72	178	169	52	3.5	14.7	36.5	34.6	10.7
Coast counties.....	322	23	46	85	147	21	7.1	14.3	26.4	45.7	6.5
Interior counties.....	650	36	94	209	207	104	5.5	14.5	32.2	31.8	16.0
Southern California.....	1,742	442	583	344	260	113	25.4	33.5	19.7	14.9	6.5
Los Angeles.....	1,161	286	425	227	149	74	24.6	36.6	19.6	12.8	6.4
Other counties.....	581	156	158	117	111	39	26.9	27.2	20.1	19.1	6.7
Northern and Central Cali- fornia.....	2,695	113	334	838	1,024	386	4.2	12.4	31.1	38.0	14.3
Coast counties.....	1,829	65	220	556	740	248	3.5	12.0	30.4	40.5	13.6
Interior counties.....	866	48	114	282	284	138	5.5	13.2	32.6	32.8	15.9
Metropolitan area.....	1,297	38	147	402	510	200	2.9	11.4	31.0	39.3	15.4
Rural counties.....	1,398	75	187	436	514	186	5.3	13.4	31.2	36.8	13.3

It appears from the table that the per cent of tuberculosis victims in California who were natives of the State, having been here for life, was only 28.6 for 1907 and 28.9 for 1906. The per cent born elsewhere, but who were residents of 10 years' standing, was 25.7 for 1907 and 26.6 for 1906, while the per cents for those who had lived in California only from 1 to 9 years were 22.4 and 20.7 for 1907 and 1906, respectively. In 1907, 9.9 per cent and in 1906 no less than 12.5 per cent of all the deaths from tuberculosis were of persons who had been in the State less than a year. The length of residence was unknown for 13.4 per cent of the tuberculosis victims in 1907 and for 11.3 per cent in 1906.

The per cent for natives of the State was 38.1 for Central California each year, and for Northern California 35.9 in 1907 and 37.6 in 1906. The per cents were respectively 37.7 and 38.0 for the counties north of Tehachapi against only 14.8 and 14.9 for those to the south. The per cent of tuberculosis victims born in the State was 39.4 for the metropolitan area in 1907 and 39.3 in 1906, as compared with, respectively, 36.1 and 36.8 for the rural counties north of Tehachapi.

The deaths from tuberculosis among residents of 10 years' standing were 34.1 and 33.3 per cent for Northern California and 29.9 and 30.7 for Central California in 1907 and 1906, respectively. For Northern and Central California together the per cents were 30.5 and 31.1 against only 18.4 and 19.7 for Southern California. North of Tehachapi the per cents were respectively 30.2 and 31.0 for the metropolitan area, as compared with 30.9 and 31.2 for the rural counties.

In 1907 altogether 32.3 per cent of the deaths occurred among residents of less than 10 years' standing, 22.4 per cent having lived here from 1 to 9 years and 9.9 per cent under 1 year. Similarly, in 1906, 20.7 per cent had been here from 1 to 9 years and 12.5 per cent under 1 year, or altogether 33.2 per cent had resided in California less than 10 years. The per cents for residents of less than 10 years' standing are above the State averages only for Southern California, 56.4 in 1907 and 58.9 in 1906. The per cents were 57.2 and 61.2 for Los Angeles and 54.6 and 54.1 for the other counties south of Tehachapi in 1907 and 1906, respectively. On the other hand, the corresponding per cents were only 16.4 and 16.6 for the counties north of Tehachapi, being 17.2 and 16.9 for Central California, and 11.8 and 14.8 for Northern California. The per cent of deaths among persons who had lived in California less than 10 years was 15.2 for the metropolitan area in 1907 and 14.3 in 1906, as compared with, respectively, 17.5 and 18.7 for the rural counties north of Tehachapi.

It seems, therefore, that in Southern California, where over one-fifth of all deaths are from tuberculosis, that nearly three-fifths of these deaths occur among persons who had been in the State less than 10 years. In fact, about one-fifth of all the tuberculosis victims south of Tehachapi had resided in California less than a year, the per cent being 18.4 for 1907 and 25.4 for 1906. The per cents were 17.7 and 24.6 for Los Angeles and 20.2 and 26.9 for the other counties in 1907 and 1906, respectively.

Southern California.—Moreover, many who died of tuberculosis in Southern California had lived in the State only a few months. This is shown clearly in the following table giving numbers and per cents by length of residence in months for Southern California in 1907 and 1906:

Deaths from Tuberculosis Classified by Length of Residence (in Months), with Per Cents, for Southern California: 1907 and 1906.

GEOGRAPHIC DIVISION.	LENGTH OF RESIDENCE.									
	Total Under 1 Year.		Under 1 Month.		1 to 2 Months.		3 to 5 Months.		6 to 11 Months.	
	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.	1907.	1906.
NUMBERS.										
<i>Southern California</i> -----	337	442	43	59	97	100	92	120	105	163
Los Angeles -----	227	286	29	37	72	60	55	79	71	110
Other counties -----	110	156	14	22	25	40	37	41	34	53
PER CENTS.										
<i>Southern California</i> -----	18.4	25.4	2.4	3.4	5.3	5.7	5.0	6.9	5.7	9.4
Los Angeles -----	17.7	24.6	2.3	3.2	5.6	5.1	4.3	6.8	5.5	9.5
Other counties -----	20.2	26.9	2.6	3.8	4.6	6.9	6.8	7.1	6.2	9.1

The table shows that of all who died of tuberculosis in Southern California in 1907, 2.4 per cent had been in the State less than a month, altogether 7.7 per cent less than three months, and altogether 12.7 per cent less than six months. In 1906 3.4 per cent had lived here under a month, altogether 9.1 per cent under three months, and altogether 16.0 per cent under six months. Of all the tuberculosis victims in Los Angeles in 1907 12.2 per cent, and in 1906 15.1 per cent, had resided in California less than half a year. The corresponding per cents for the other counties south of Tehachapi are 14.0 for 1907 and 17.8 for 1906.

Conclusion.—These figures give only a minimum statement of the extent to which the general death rate of California is swollen by the deaths of persons who were stricken with tuberculosis elsewhere, and who simply came here in the hope of recovering, or with the expectation of at least lengthening their lives in the glorious climate of the Golden State. The statistics cover only the deaths that occur among these recent residents, in many cases quite soon after their arrival in this land of sunshine. No data are available to tell what proportion of deaths from tuberculosis among native Californians and old-time residents are directly due to imported infection by the presence here of sick people from other places. It is quite evident, however, that the death rate of California is swollen somewhat by the unhealthfulness, not of this State, but of other states, being increased, in fact, by the wide fame of California as a curative health resort. For the principal cause of death the State is one which finds most of its victims among newcomers seeking restored health and finding longer, happier life in the balmy atmosphere of California.

VITAL STATISTICS FOR JULY.

Births.—The living births registered in July number 2,497, against 2,287 for June. For an estimated State population of 2,019,519 the July total represents an annual birth rate of 14.6, as compared with 13.8 for June.

The July totals were highest for the following counties: Los Angeles, 618; San Francisco, 554; Alameda, 296; Santa Clara, 117; Fresno, 71; San Diego, 59; and Sacramento, 57.

The births registered in the leading freeholders' charter cities in July were: San Francisco, 554; Los Angeles, 398; Oakland, 185; Berkeley, 54; San Diego, 51; Pasadena, 44; Fresno, 37; Sacramento, 33; Alameda and San José, each 26; and Vallejo, 25.

Marriages.—The marriages reported for July number 1,854, against 2,251 for June, and represent an annual marriage rate of 10.8, as compared with 13.6 for the preceding month.

The July totals were highest for the following counties: Los Angeles, 404; San Francisco, 376; Alameda, 181; Santa Clara, 85; Sacramento, 69; San Joaquin, 58; Orange, 57; San Diego, 55; and Fresno, 51.

Deaths.—Altogether 2,482 deaths, exclusive of stillbirths, were reported for July, against 2,508 for June. The annual death rate for July is 14.5, as compared with 15.2 for June.

The July death totals were highest for the following counties: San Francisco, 488; Los Angeles, 446; Alameda, 256; Sacramento, 103; Santa Clara, 98; San Joaquin, 82; San Diego, 76; Fresno and San Bernardino, each 69; and Sonoma, 59.

Deaths for July were reported as follows for the leading cities: San Francisco, 488; Los Angeles, 273; Oakland, 129; Sacramento and San Diego, each 64; Stockton, 41; Alameda, 33; Berkeley, 32; Fresno, 28; San José, 27; and Pasadena, 26.

Causes of Death.—In July there were 351 deaths, or 14.1 per cent of all, from diseases of the circulatory system, and 308, or 12.4 per cent, from all forms of tuberculosis, heart disease leading tuberculosis slightly as in June.

Other notable causes of death in July were: Violence, 322; diseases of the digestive system (especially infantile diarrhea), 297; diseases of the nervous system, 223; cancer, 153; diseases of the respiratory system, 149; Bright's disease and nephritis, 134; and epidemic diseases, 125.

The leading epidemic diseases in July were: Typhoid fever, 41; whooping-cough, 24; diphtheria and croup, 23; malarial fever, 10; measles, 9; and all others, 18.

Further details appear in the following table, which gives the number of deaths from certain principal causes reported for California in July, as well as the proportions from each cause per 1,000 total deaths for both July and June:

Cause of Death.	Deaths: July.	Proportion per 1,000.	
		July.	June.
ALL CAUSES.....	2,482	1,000.0	1,000.0
Typhoid fever.....	41	16.5	11.2
Malarial fever.....	10	4.0	2.0
Measles.....	9	3.6	6.4
Scarlet fever.....	2	0.8	4.4
Whooping-cough.....	24	9.7	6.8
Diphtheria and croup.....	23	9.3	8.4
Influenza.....	2	0.8	0.4
Plague.....	2	0.8	—
Other epidemic diseases.....	12	4.8	2.0
Tuberculosis of lungs.....	261	105.2	128.8
Tuberculosis of other organs.....	47	18.9	21.9
Cancer.....	153	61.6	59.8
Other general diseases.....	112	45.1	41.9
Meningitis.....	37	14.9	13.5
Other diseases of nervous system.....	186	74.9	74.9
Diseases of circulatory system.....	351	141.4	157.9
Pneumonia and broncho-pneumonia.....	99	39.9	63.8
Other diseases of respiratory system.....	50	20.1	25.1
Diarrhea and enteritis, under 2 years.....	133	53.6	39.9
Diarrhea and enteritis, 2 years and over.....	27	10.9	5.2
Other diseases of digestive system.....	137	55.2	57.4
Bright's disease and nephritis.....	134	54.0	51.4
Childbirth.....	26	10.5	10.4
Diseases of early infancy.....	122	49.2	30.7
Suicide.....	63	25.4	23.9
Other violence.....	259	104.4	90.5
All other causes.....	160	64.5	61.4

Geographic Divisions.—The table below shows the number of deaths from main classes of diseases reported for July for the several geographic divisions of the State, including the metropolitan area, or "Greater San Francisco," in contrast with the rural counties north of Tehachapi:

Geographic Division.	DEATHS: JULY.									
	All Causes.....	Epidemic Diseases.....	Tuberculosis (All Forms)	Cancer.....	Diseases of Nervous System.....	Diseases of Circulatory System.....	Diseases of Respiratory System.....	Diseases of Digestive System.....	Violence.....	All Other Causes.....
THE STATE.....	2,482	125	308	153	223	351	149	297	322	554
<i>Northern California</i>	337	18	31	13	44	45	24	28	60	74
Coast counties.....	159	8	16	8	27	24	15	10	19	32
Interior counties.....	178	10	15	5	17	21	9	18	41	42
<i>Central California</i>	1,464	68	164	98	122	218	83	200	189	322
San Francisco.....	488	19	57	32	31	83	30	64	57	115
Other bay counties.....	338	13	31	28	29	48	25	49	42	73
Coast counties.....	163	6	25	16	11	35	12	19	20	19
Interior counties.....	475	30	51	22	51	52	16	68	70	115
<i>Southern California</i>	681	39	113	42	57	88	42	69	73	158
Los Angeles.....	446	21	70	31	36	66	28	41	44	109
Other counties.....	235	18	43	11	21	22	14	28	29	49
<i>Northern and Central California</i>	1,801	86	195	111	166	263	107	228	249	396
Metropolitan area.....	826	32	88	60	60	131	55	113	99	188
Rural counties.....	975	54	107	51	106	132	52	115	150	208

DEPARTMENT OF BACTERIOLOGY.

DR. A. R. WARD, DIRECTOR.

WATER AND MILK EXAMINATIONS AND TYPHOID FEVER.

MARGARET HENDERSON, State Hygienic Laboratory.

The Laboratory receives, especially at this time of the year, so many samples of water and milk with requests for examinations, that it seems desirable to make a full statement of our abilities and our limitations in regard to water and milk examinations and typhoid fever. One mail of this week brought a tiny, one-half ounce, vial of water with a request that we examine it to determine the efficiency of the filter through which it had been run; a package containing two tiny test-tubes, one filled with water and the other with milk, to be examined to determine whether the typhoid in the town was arising from the dairy from which they had been obtained; and a four-ounce bottle of water in which we were asked to find the source of a typhoid epidemic. And we could, of course, do nothing with any of them.

First, for the milk: The detection of typhoid bacilli in milk is practically impossible. There are so many organisms in milk that closely resemble it, that its isolation and identification from amongst the crowd would be a matter of endless and unprofitable labor. In dealing with a milk that is suspected of being the carrier of typhoid, we have to go around behind the milk and examine the possible sources of germs. Typhoid bacilli are always added to milk after it comes from the cow; they get into it by way of contaminated water used, unboiled, to wash cans, or to dilute the milk itself; or by way of the dirty hands of persons handling the milk, who are themselves suffering or have suffered from typhoid fever; or by means of flies which carry the germs to the cans from the discharges of some typhoid fever patient. So, when we suspect a milk of having typhoid fever germs in it, what we really want to know is whether the cans are being washed or the milk diluted with unboiled water; whether any of the people handling the milk are harboring and discharging typhoid bacilli, or whether there is a case of typhoid fever in the immediate vicinity of the dairy, which is being so carelessly handled that flies can get at the discharges of the patient, and can then fly to the milk room of the dairy. An examination of the dairy, and its surroundings, and its human population will often show at once whether the milk is carrying typhoid germs, and how they are getting into it, when a bacteriological examination would be powerless even to detect the presence of the typhoid organisms.

With water it is also well-nigh impossible to isolate the typhoid bacillus. There are a large number of other organisms in water that

resemble it very closely. Even at the worst, it exists in water in such small numbers that few cases in which investigators have reported finding it are to be regarded with considerable doubt. Laws and Andrews failed entirely to isolate the organism from the sewage of London, and found only two colonies on a long series of plates made from the sewage of a hospital containing forty typhoid patients.

The best we can do with a water suspected of typhoid carrying, is to get at some idea of the amount of sewage contamination in it. It is only through sewage that typhoid organisms get into water, and if the amount of sewage is large, the probabilities that the typhoid organisms are present is increased. If there is but little sewage, or that little has been added some time since, there will be but little danger of typhoid. The bacillus coli is an organism that is always present in man's intestine, and consequently in sewage, and it is an organism which dies rather quickly outside the body. It is comparatively easy to isolate and identify. Consequently, it is a convenient index of the amount of sewage in the water and the freshness of the contamination. A large number of colon bacilli in the water means that the water has recently had sewage added to it, and, consequently, if there is any way by which typhoid bacilli can get into that sewage, that the water will be dangerous from a typhoid standpoint. In determining then whether a water is likely to be a source of typhoid, what we determine is whether or not it is being contaminated with sewage, and to what extent.

Unfortunately for our conclusions, the bacillus coli is present in the intestine of many other animals than man. By consequence, a water that washes over a field where ground squirrels live, for instance, would show a rather large colon content, but would be guiltless of typhoid bacilli. A spring, on the other hand, ought to show but very few such organisms, for it comes from deep down where animal excreta are not. A number of colon bacilli in the water of a pond means only that the water is surface water; in the water of a spring that same number would mean that the water is rather grossly contaminated.

Here enters one difficulty in making an intelligent analysis of a water shipped to the laboratory. We get a bottle of water, with or without any explanatory data, and are asked to tell whether or not it is the source of the typhoid in the town. We may be told, for instance, that it comes from a well. If it is from a shallow well, receiving surface water, a certain number of colon bacilli may mean nothing in particular, while the same amount in a deep driven well may mean that the water is very dangerous to drink. The only thing that can make the bacteriological examination of the water of the slightest use in determining whether or not a typhoid epidemic is water borne, is a careful sanitary survey of the source of that water. This we must have to be able to interpret the bacteriological results. And this it is impossible for this laboratory to make. It is a matter of great regret that we have not laboratory force enough so that we can send a man out to make these surveys and collect samples, and make examinations on the spot, and so deal with epidemic of typhoid as they ought to be dealt with in their lair.

An analysis of the histories of cases involved in an epidemic will often be of great use in determining its source. By the time you have

found out by inquiry the source of the water or milk used by each of the cases in a town, whether or not the patients have been away to any point where the disease is known to exist; the date of the first symptoms, and of taking to bed; whether there have been previous cases in any of the households; whether the patients have visited other cases; whether there is the chance of fly interchange between houses; and the source of green vegetables, you will be in a position usually to trace your epidemic to its source without trouble. If fifteen of your twenty cases get milk from one dairy, and in that dairy you find a man who is suffering from typhoid, you will be much more sure than a bacteriological examination could make you that the milk is carrying the disease. If you find that all your cases live in one rather dirty part of town where flies abound, and the discharges of the patients are being carelessly handled and food lies where flies can crawl over it, it is needless to trouble about your water supply. If all your patients get water from the same supply, it will be much more convincing to find a case of typhoid in a farmhouse on that watershed than to have a report from the laboratory based on a water that had to be shipped a two days' journey, and saying that it contains bacillus coli in such numbers as to make it an object of suspicion.

So when there is typhoid in a town the best way to deal with it is to get from the history of the cases themselves a good idea whether the milk or the water is to blame. If it is milk, examine the dairy; see if the pans are being washed in unboiled water; see if any of the dairy employes have walking typhoid; see whether flies can get at the milk pans. Then if it is the water, examine its sources, examine the watershed, and find the case of typhoid which is giving source to the epidemic. And then if you still feel that the water is under suspicion, but have not sufficient circumstantial evidence to convict, the laboratory will send you a specially prepared case for a sample, and make an examination of it. But remember that the report is unreliable, for a water that is kept for a few days changes so that its own source would not recognize it, and unless examinations are made on the spot where the water is collected you can put small dependence on the outcome, and the greater the distance it is to be shipped the less is it worthy of dependence.

DEPARTMENT OF PURE FOODS AND DRUGS.

PROF. M. E. JAFFA, DIRECTOR.

The following is part of an address delivered by a representative of one of the largest condiment manufacturers in the world at the recent Pure Food Conference at Mackinac Island. It effectually disposes of the complaint that preservatives must be used:

“Five years ago, when representatives of our company addressed you at St. Paul, and again four years ago at St. Louis, we, in common with all manufacturers of condimental foods, regarded with some degree of doubt and uncertainty the practical outcome of the movement against artificial preservatives, which was then being initiated. We had at that time no information as to the injuriousness of sodium benzoate—there had been little information on the subject.

“When the effect of this substance upon the human system was pointed out by men of notable scientific attainment—men whose opinions we regarded as beyond question—our efforts were redoubled, with what result you all know. I need not at this time recount to you our success, which was made step by step until we were able to state that artificial preservatives—including alum in pickles—had been finally eliminated from the last one of our products.

“After experience with a complete line of condimental foods, sauces and relishes, all pure in the strictest sense, after a full year of experience with the heat and cold of changing seasons, of wide distribution at home and abroad, including the trying climatic conditions of tropical countries, we are here to-day to tell you that this experience has been one of pronounced and unqualified success.

“It may be known to you that our goods are sold under the guaranty to the consumer of full purchase price refunded if, for any reason, they fail to please; a policy broad enough to bring home to us every cent of spoilage loss from every source, wherever it occurs, either at home or abroad, and under this sweeping guaranty our losses in all directions and on our entire product have stood during the past year practically without variation—amounting to less than one quarter of one per cent.

“This is a success that has fully and finally established our confidence in the pure food theory as applied to all fruit and vegetable products, and it is our earnest hope that the experience which we come here to relate may serve to strengthen the confidence and the faith of the gentlemen of this association and to influence as well our still doubting and hesitating competitors.”